

Abstract

A method and corresponding system provide a tortuous path, which functions as restrictors or filters, in diffusion bonded plates for fluid handling. Fluid includes gases, liquids and all types of sample fluids. The method constructs various restrictive elements and etches the restrictive elements into one or more substrates. The substrates are then bonded together using diffusion bonding technology to form fluid flow channels with integrated tortuous paths (functioning as restrictors or filters). The method thus provides a restricting or filtering device that is monolithically integrated into a fluid handling system. The filtering device can also be used as a backup to an external filter to prevent contaminating particles from entering delicate mechanisms of the fluid handling system.